a chemical library comprising storage locations for a plurality of multi-well plates, each of which comprises individual chemical wells for containing samples;

a computer controlled chemical well retriever for programmable selection and retrieval of at least one of said multiwell plates comprising selected ones of said chemical wells;

a transport path coupled to said chemical library for receiving said at least one multiwell plate from and returning said at least one multiwell plate to said chemical library; and

a plurality of automated liquid handling devices operatively coupled to said transport path, whereby said high throughput chemical screening system is configured to process at least approximately 25,000 chemical samples in a 24 hour period;

wherein said system is programmable to retrieve and handle either (a) the samples from every one of the chemical wells of said at least one multiwell plate or (b) the samples from a subset of chemical wells within said at least one multiwell plate.

22. (ONCE AMENDED) A chemical storage apparatus containing chemical samples to be retrieved comprising:

a plurality of storage locations for chemicals;

a moving automated chemical retriever configured to retrieve chemicals from said storage locations;

a chemical storage buffer coupled to and moving with said moving automated chemical retriever for temporarily storing chemicals retrieved from said storage locations.

24. (TWICE AMENDED) A high throughput chemical screening system comprising:

a chemical library comprising storage locations for at least approximately 1000 multi-well plates, each of which comprises individual chemical wells for containing samples, such that said library comprises at least approximately 100,000 addressable chemical wells;

a computer controlled chemical well retriever for programmable selection and retrieval of at least one of said multiwell plates comprising selected ones of said chemical wells;

a transport path coupled to said chemical library; and

a plurality of automated liquid handling devices coupled to said transport path;